

Dear GLOBE friends,

For the past year the Evaluation Working Group has been focusing on GLOBE Alumni. We created a survey and reached out to Alumni in all GLOBE regions, and we were able to collect several responses from all over the world.

Collecting these responses was not an easy task. We communicated with the Regional Offices, with Country Coordinators (CCs) and teachers. We realized that there were not, in many cases, organized records for the Alumni at the Regional Offices, CCs or at the teacher level. After the Regional Office, the CCs, or the teachers provided the contacts of the alumni available, many of the Alumni contacted were somewhat reluctant to answer, they did not feel comfortable sharing information or eventually did not provide a response at all. Some CCs could not provide any feedback to the survey for different reasons: for example, the countries were very new in the program to have an alumni group, or they only work with Primary School in the program so they have no alumni program as of yet. Other reasons were that they could not identify alumni in their countries, they had no information of alumni in their records.

In some cases, the Regional Offices and the CCs did not provide any response/ feedback to our request.

We believe that each one of the responses we received is a very valuable piece of information to take into account, as this is the first group of Alumni that has been reached for such an effort. We think this is important feedback for the GIO, the Working Groups, the sponsors and the whole GLOBE community.

After analyzing the feedback we were able to collect in this phase, we created this report, aiming to communicate with the broader community on what the alumni have shared with us. Our next step will be to upload the survey on the GLOBE website in order to reach a bigger audience. You will be able to access the GLOBE Alumni Survey at:

<https://www.globe.gov/about/impact-and-metrics/globe-alumni-survey>

We would like to thank all the members of the GLOBE community who contributed to this work and provided us with their feedback. We would especially like to thank our good friend and colleague, Diana Garasic, CC for Croatia, who first shared this idea with us at the 23rd Annual Meeting in Detroit.

Recognizing that the Alumni are an extremely important group for the GLOBE Program, as they can act as ambassadors for the program, we would like to help develop a mechanism to maintain contact with this specific group, and to try keep them engaged and involved in the program. We are providing some of our recommendations in this report.

Dear GLOBE friends, please get in touch with us for any ideas, or questions you may have.

Thank you!

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### Where out feedback came from

Asia: Nepal, Philippines, Thailand. 3 countries. Total responses: 19

LAC: Argentina, Chile, Perú. 3 countries. Total responses: 12

Europe: Croatia, Estonia. 2 countries. Total responses: 11

NENA: (no detail of countries). Total responses: 22

Africa: Benin, Cameroon, Ghana, Guinea, Madagascar, Senegal, Togo. 7 countries. Total responses: 43

North America: Total responses: 4

### Q1. In which level of education did you join GLOBE activities?

To this question we got 109 responses:

Lower Primary- 2nd Grades (Kindergarten): 1

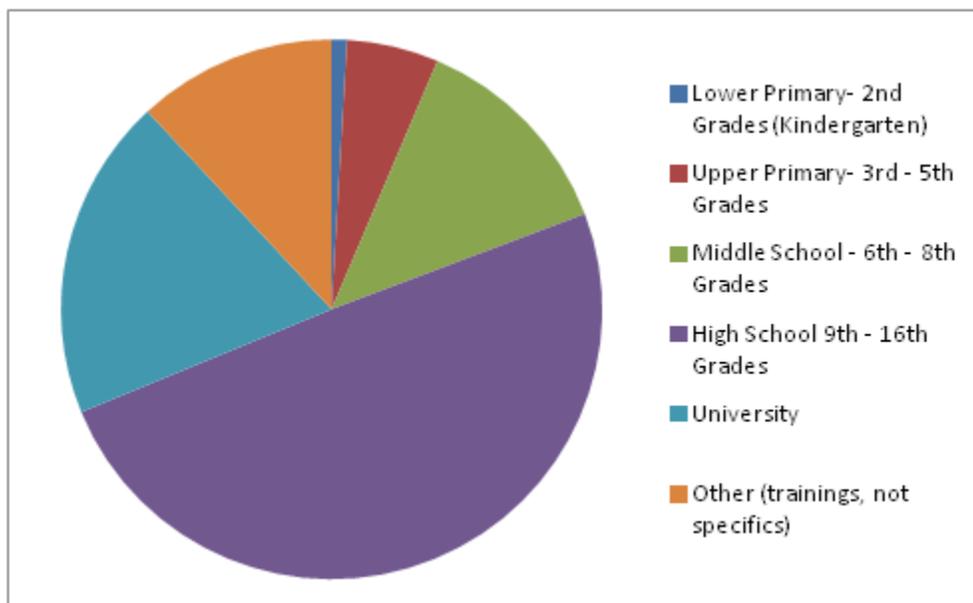
Upper Primary- 3rd - 5th Grades: 6

Middle School - 6th - 8th Grades: 14

High School 9th - 16th Grades: 54

University: 21

Other (trainings, not specifics): 13



About half of Alumni joined GLOBE activities when in high school (9-16th grades) followed by University and middle School (6-8 grades) levels. Others joined through GLOBE workshops,

what is a good point to improve GLOBE implementation in countries. Few alumni indicated that they joined when in Upper or lower primary level. This indicates that GLOBE is less implemented in primary school than other levels. Effort may be made at that effect by GLOBE CCs.

## **Q2. For how long were you involved in GLOBE?**

A total of 110 Alumni responded to this question:

One year or less: 25

Two years: 22

Three years: 24

Four years: 9

Five or more years: 28

No answer: 2

Most Alumni have spent five or more years involved in GLOBE, then three years, two years and four years of involvement in GLOBE activities.

## **Q3. Which protocols/areas of investigation did you practice?**

A total of 111 alumni responded this question.

From the total, 13 alumni responded that they practiced all areas of investigation.

From the 109 responses, 59 people practiced the Atmosphere protocols (including “All of them response” mentioned above). The following protocols were specified:

Clouds (15 people), Air temperature (9p.), Precipitation (5p.), Humidity (4p.), Barometric pressure (3), Aerosols (2), Surface temperature (1), Snow (1)

The Mosquito protocol was mentioned in different ways (Malaria, Zika, Habitat Mapper, Mosquito larvae) by 30 alumni, this protocol was considered apart from the Atmosphere and Hydrosphere investigation areas.

Note: In this response, all of the illnesses referred to the mosquito protocol were included as studied through the training in this protocol or the app.

35 alumni said that they had practiced the Hydrosphere protocols and they specified the following ones in some cases: Water pH (3 people), Water temperature (3 p.), Dissolved oxygen (2p.), Nitrates (2 p.), Turbidity (1p.), Alkalinity (1p.), Conductivity (1p.), Macroinvertebrates 1 (1p.) (These figures include “All of them” response)

With regard to the Biosphere investigation area, 29 alumni mentioned it (including “All of them response”). Some of the cited protocols are: Phenology (5 people), Budburst (1p.), Trees height (4p.), Land cover (3p.), Satellite imagery (2p.), MUC (1p.).

In relation to Pedosphere, only 18 alumni mentioned it (including “all of them” responses). The protocols mentioned were: Soil temperature (2 people), Soil ph (1p.), Soil fertility (1p.)

In addition, 1 alumni mentioned “Earth as a system” investigation area, 1 mentioned the GPS protocol and the GLOBE at night campaign was mentioned by 1 alumni.

The GLOBE Observer app was named by 6 alumni.

We had 30 responses that could not be included as valid ones since they related to: “Not sure” answers, no answer or other responses that could not be categorized:

Not sure (10 responses)

Area of Investigation

I practiced at my school, Princess Chulahorn Science High School, Trang.

The Gulf of Thailand

Waste management (2 responses)

Climate change

Astronomy

Environmental Science

Atmospheric phenomena studies (El Niño)

Earth layers, solar radiation, environmental pollution, among others

Data collection (2 responses)

We explored the urbanization of the city, we also had agricultural projects and climate change.

GLOBE TAHMO

Alumni

Field and Laboratory Protocols

Health

Research

In the field of environmental protection

No answer

Main conclusion: the investigation area most practiced by alumni when they attended school was Atmosphere, followed by Hydrosphere and Mosquito Larvae (in spite this can be considered a protocol inside the Hydrosphere area).

**Q4. Can you share how GLOBE contributed in your education and personal growth?**

Total number of responses: 119

The question was analyzed to identify patterns in the responses. Emerging themes follow below. The number in the parenthesis corresponds to the number of responses that were provided for the specific item.

GLOBE helped me:

Gain knowledge about the environment and science in general (37)

Develop environmental awareness (16) with emphasis on community issues (6) (22)

Affected my career choices (20)

Investigate, do hands-on science, contribute to research and science, real scientific research (19)

Work in teams (16) and Interact with other groups of students and teachers (16)

Develop public speaking, writing, communications skills, through my participation in science fairs and conferences (12)

Develop skills, ex. use instruments (11)

Be part of a community (9) (international component mentioned)

Have the opportunity for community engagement / citizen science (8)

Do scientific projects (8)

Develop analytical skills (7)

Learn the importance of data (7)

Think about following sustainable practices in everyday life (7)

Support general personal growth (7)

Supported the development of leadership. (5)

Gain confidence (7)

Develop responsibility and culture of discipline (5)

Initiated/increased my scientific curiosity (5)

Learn to put knowledge into practice (4)

Appreciate the program as activities are fun (4)

Work with other environmental groups (3)

Understand the links of the environment to human health (2)

Some other responses that were provided are as follows:

GLOBE

Helped me think out of the box

Helped me gain awareness of env. laws  
Affected my teaching abilities  
Helped me develop love for the outdoors  
Allowed me to explore interests in the STEM field  
Made school more interesting.

and:

Because of GLOBE I was able to:

Work with objectives

Travel to participate in meetings and competitions

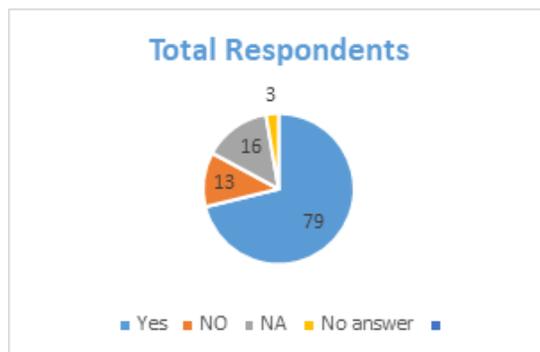
Learn that nature helps me find inner peace when everything seems to be chaotic

Share research with other colleagues

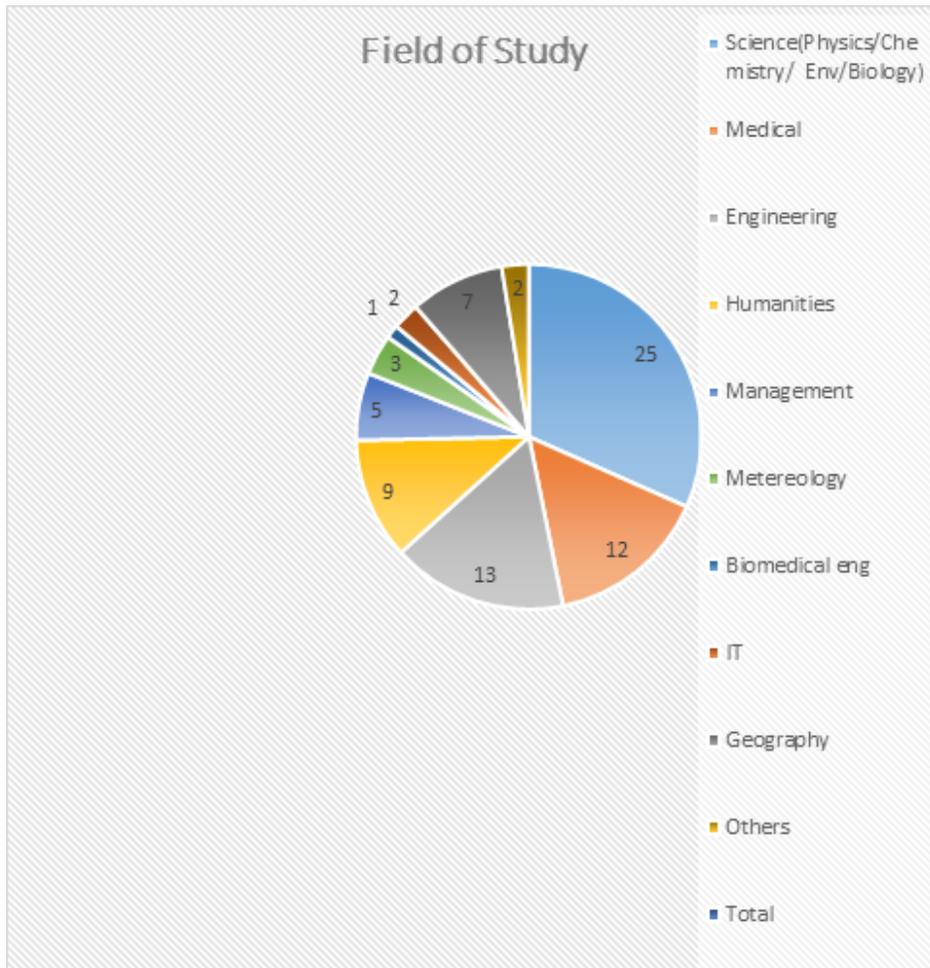
The responses provided by the Alumni showed that GLOBE has benefited them in many ways. Not surprisingly, they stated that they gained knowledge about the environment and that their environmental awareness increased. The responses also indicate that the Alumni research performance (hands-on science, critical thinking, analytical skills, using an instrument, doing projects, developing presentation skills, etc.) was strengthened. It was very interesting to see that many respondents stated that GLOBE has led to a number of positive impacts, from developing personal growth and life-building skills including confidence, discipline, responsibility, thinking out of the box and leadership. Another important theme was the choice of STEM related careers. The community aspect of GLOBE (being a member of a group, working with other people, traveling to new places for meetings) was also mentioned by several of the respondents.

#### **Q5. Did you pursue studies after graduation from school? If yes in what area?**

There were 111 respondents, with 3 providing no answer to the specific question. Out of the 108 respondents, 79 have answered “Yes”, 13 have answered “No” and 16 have answered “NA”.



The Alumni have answered regarding the area of studies or profession after graduation from school as seen in the graph below.



**Q6. Do you feel that your participation in GLOBE played a role in your career choices?**

A total of 111 Alumni responded to this question:

Yes: 73

No: 23

Maybe: 13

no answer: 2

Most Alumni consider that GLOBE has played a role in their career choices. Fewer think that GLOBE has not played a role in their career choices and a smaller number are not sure.

**Q7. Is what you are currently working on somehow related to the knowledge and / or skills you acquired from GLOBE?**

We received 105 responses to Q7.

The participant responses were as follows:

72- 'YES'

25- 'NO'

8- 'OTHER'

Some working area themes that emerged within the participant response data included:

Research

Work-related

Skills

Connections

Some representative quotes about these areas follow:

Research

Nowadays, I do research at University with regard to multivariate analysis of drinking water. the part of teamwork and applying my knowledge in meteorology to do research.

I have done a summer internship in the Bariloche atomic center where I researched about new ways for hydrogen storage for use as energy vector.

My research has moved away from the analytics and progressed more into developing new compounds and methods for drug design. However, the basics of my research experience started with GLOBE.

it's a Research study we're doing every year in my school. In this upcoming grade level (9th Grade), I already gain the ideas to what I'm going to study with the help of GLOBE activities. Truly, a remarkable experience.

From previous research studies, I have been able to use GLOBE protocols which served as a guide to perform experimentation.

Work

I am working as analyst of variability and climate change in the SENAMHI with GLOBE I started projects related to atmospheric science that related to the collection of meteorological data and solar energy. I currently work with meteorological data coming from satellites and models, and the methodology and analysis are very much complex.

I am working at Croatian Meteorological and Hydrological Service  
I'm a GLOBE teacher.

I'm a member of GLOBE Alumni and work through non-profit association ZNANSTVENICI AMATERI in Croatia on promoting and helping schools to introduce and organize GLOBE program and events in their practice.

my current workplace is conducting GLOBE related activities.

I am currently working on WASH projects in ECCA Nepal as a program officer which is somehow related to the knowledge and skills acquired from GLOBE. For example, a water quality test. Currently I am working in ECCA on a Safe drinking Water project and GLOBE Program, the GLOBE Program experience is helping me on it.

### School

My thesis focuses on both hydrological and ecological agendas of a rivers system.

In the next semester, I will study at KVIS, one of the Science schools.

I am study in science-math program.

I think what I was working on when I was in the project quite related to the skill I acquired from GLOBE.

I will say that it has allowed me to better orient my teaching

Yes, I am lucky to be in globe because I am more motivated in my studies because I have a lot of experiences! Globe's activities and protocols are in my studies right now and I'm so happy about it because I already have a lot of experience!

### Skills

Yes, I am still working with GLOBE and continuing to apply both science and education skills

The skills I enhanced while working on our project to present to GLOBE definitely are helping me in college.

Today I am coordinating teamworks in science. My passage through GLOBE was clearly a determining factor to be where I am today. As I mentioned before, the development of soft skills for team management is something that the program potentiated in me. Regarding theoretical-practical contents, I feel that complemented very good my technical training obtained at the Institute

I still use the practical skills for experimental analysis of chemical matter I started using in hydrology, only more advanced now.

Data analysis skills came from GLOBE and my work as CC is also related to the GLOBE program.

### Connections

there's a connection because we're talking about the distribution of water on earth in second.

Since Aeronautic involve all GLOBE Protocols

The link between GLOBE and agronomy, which is indeed my field of activity, does not need to be demonstrated.

25 Participants responded 'NO' to Q7.

Some representative quotes:

I do not work yet.

I stopped doing measurements when I left the program, and with regard to knowledge, I will use them when I do the science admission test for physics.

No, as of now I am just focusing on improving my skill set.

No, but I am committed to promote globe with others and collaborate with the program

8 Participants responded 'OTHER' to Q7.

A representative quote:

The knowledge and abilities learnt in GLOBE not only serve for work but for daily life.

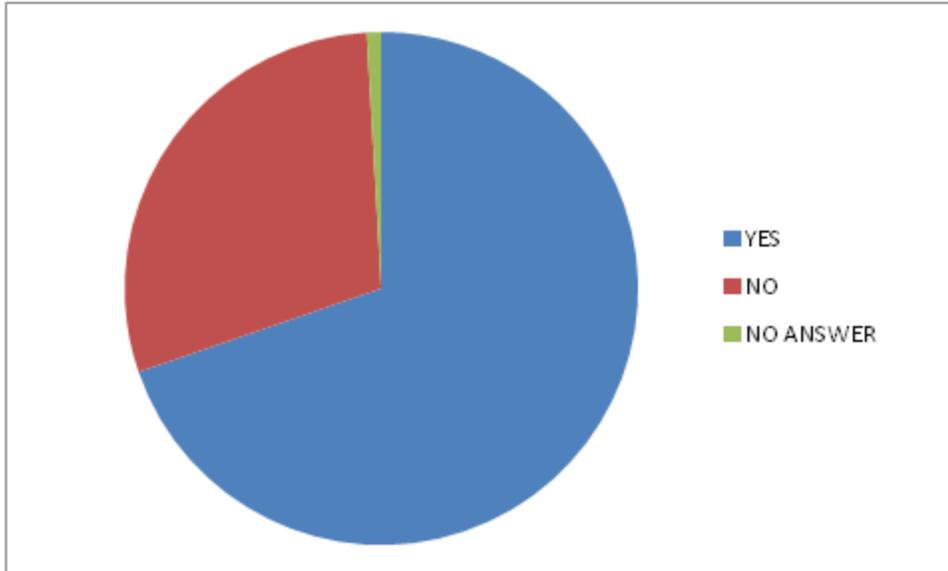
### **Q8. Have you been in the past or are you currently involved in any volunteer work related to GLOBE?**

To this question we got 109 responses:

YES: 76

NO: 32

NO ANSWER: 1



Most Alumni had been in the past or are currently involved in volunteer work related to GLOBE. This is a good point as alumni organization primarily aims to contribute to GLOBE's implementation on a voluntary base.

**Q9. Alumni support is very important. Would you be willing to help GLOBE in any of the following ways:**

A total of 111 Alumni responded to this question:

Contribute with 2 or more activities: 66

Become a GLOBE trainer or a mentor trainer: 18

Volunteer for social media to support your National/Regional GLOBE Office communication: 10

Give a talk: 7

Mentor students: 6

Contribute to a blog or article: 2

No answer: 4

Most Alumni would be willing to combine two or more of the above mentioned activities to support GLOBE, followed by "Become a GLOBE trainer or a mentor trainer". The next most answered alternatives were "Volunteer for social media to support your National/Regional GLOBE Office communication", "Give a talk", "Mentor students" and "Contribute to a blog or article".

**Q10. Do you have any suggestions how GLOBE alumni could be strengthened and function better?**

A total of 97 people answered this question. From this total 21 people said they did not have any suggestions to this question and 4 people did not provide any response.

We got 4 responses saying that they did have suggestions to strengthen GLOBE alumni but did not specify them.

The rest of the responses (68) have been grouped in three categories to be better understood: the promotion/participation of alumni organization, GLOBE extension and the resources needed by the alumni.

· Promotion/participation of alumni organization:

-Organize national meetings / Join annually to organize activities / Regional / subregional ro-  
tative symposium to exchange ideas: 9

-To maintain contact with those who do not make part of GLOBE any more/former students/  
have more alumni programs: 7

-Have a headquarter / local offices for alumni: 6

-Join through social media (Facebook, Whatsapp) with conferences, talks, volunteering oppor-  
tunities to strengthen the GLOBE alumni association: 5p.

-Work on common projects / Regional/global meets up for programs update: 5 p.

-Popularization of alumni association: 2p.

-Workshops/ lectures to introduce students to job opportunities and studies available: 1

-Writing blogs / Send motivational messages: 2p.

-More communication among countries: 1p.

-Having a meeting or reunion with citizen scientists internationally: 1p.

-Special sessions in Annual and Regional meetings: 1p.

-Possibility to exchange with new cultures: 1p.

-Opportunity to work on activities related to GLOBE to improve knowledge and skills: 1p.

-Publish alumni recycling brochures by zone or region: 1p.

-Organize the GLOBE Expedition program: 1p.

-Make the program more practical rather than theoretical (for example: visualization of real  
data and set a plan to find solutions as mission of a real scientist): 1p.

· GLOBE extension:

-Visit schools to introduce the program / Getting the program involved at the university level:  
4p.

- Holding presentations, lectures, etc. about GLOBE / Give workshops / refresh trainings for trainers and participants: 6p.
  - Increase promotion of the program: 3p.
  - Trainings in local languages to reach more people: 1p.
  - Extend GLOBE to other locations: 1p.
  - Resources needed:
  - Scholarships: 2p.
  - Academic support/grants/travel facilities for those engaged in work in developing countries: 3p.
  - Provide GLOBE alumni with the necessary work equipment/logistics: 4p.
  - More support/involvement from GIO and regional offices: 5p.
  - Need more collaboration: 1p.
  - Receive updating trainings/training camps/join GLOBE activities to replicate the program/do research/assign them missions: 15p.
  - Improve the webpage to give information on how to learn more things: 1p.
  - Teaching alumni basic skills for after school life in the fields of science, engineering and computer: 1p.
  - GLOBE alumni should provide different funds for school level students research activities through the GLOBE program: 1p.
- Most of the responses show that the alumni want to participate somehow in the program, continuing learning or supporting new teachers and students, but also need support and resources from GLOBE organization.

**Q11. What is your overriding memory of your participation in the GLOBE program?**

**N: 93**

The alumni provided a variety of responses to their question as expected. The analysis aimed at the identification of patterns that are presented below.

Memories shared were related to :

Traveling and meeting with the community at annual meetings, conferences, science fairs, etc. in different venues (23)

Having learning opportunities and training in different thematic areas (12)

Conducting experiments and taking measurements (11)

Working with others on similar questions / issues (7)

Making friends (5)

Using instruments (4)

Interacting with mentors (4)

Experiencing being part of one big family (4)

Experiencing the dedication and passion for research (3)

Working on projects (3)

Learning about the environment in general (3)

Participating in hands-on, inquiry based learning (2)

All memories are important (2)

Becoming an alumni

As can be seen from the feedback provided, the Alumni who answered this question have fond memories from all the aspects of the Program. From traveling to meet other members of the Community, to participating in professional development sessions, taking measurements and doing projects and interacting with their mentors and the broader Community. Making friends and being a member a bigger 'family' were also highlighted in the responses.